

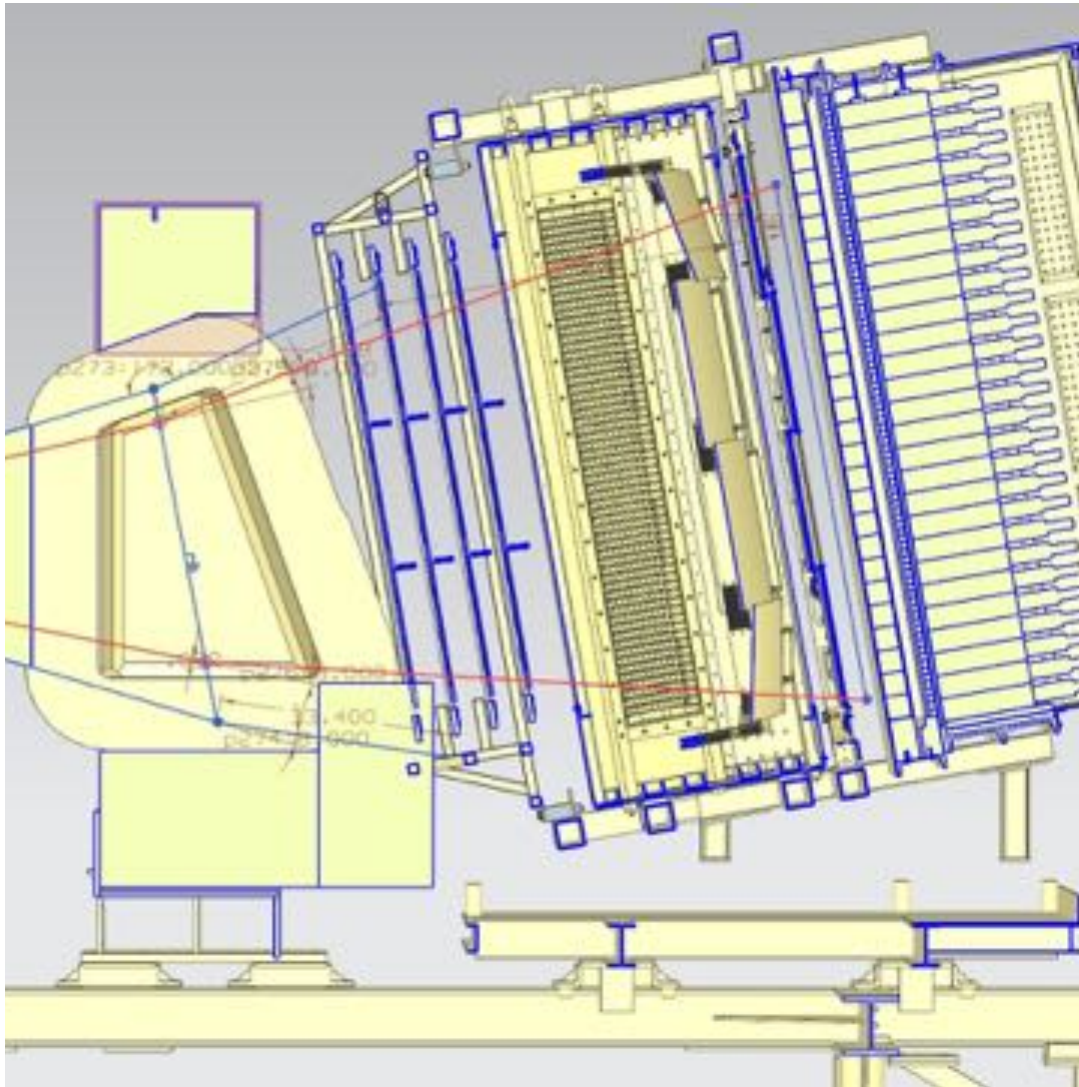
BigBite detector overview, the status and plans

B. Wojtsekhowski for the BigBite team

Acknowledge big efforts by the design group,
Hall A technical group, Hall C technical group,
Detector support group, Fast electronics group.

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

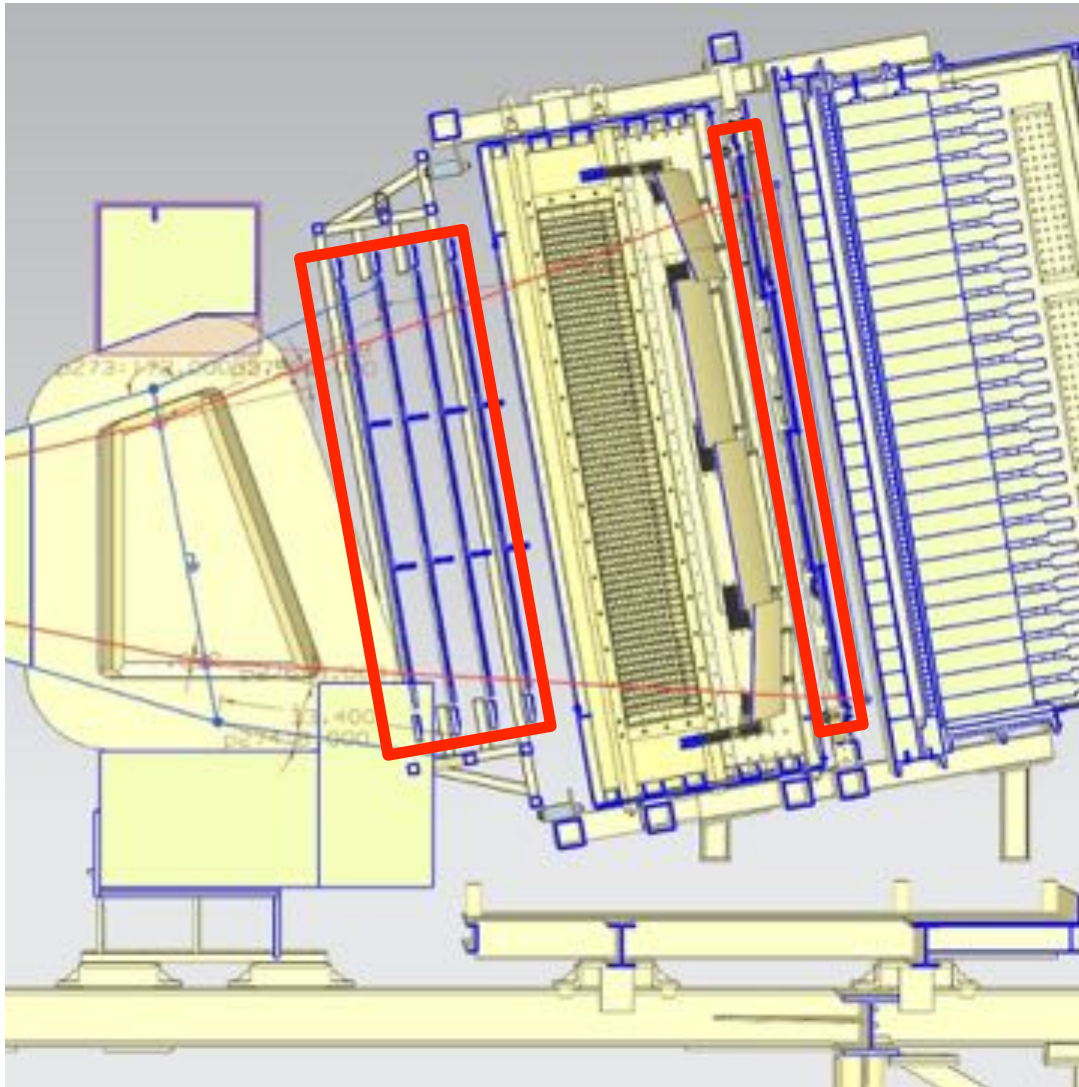
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

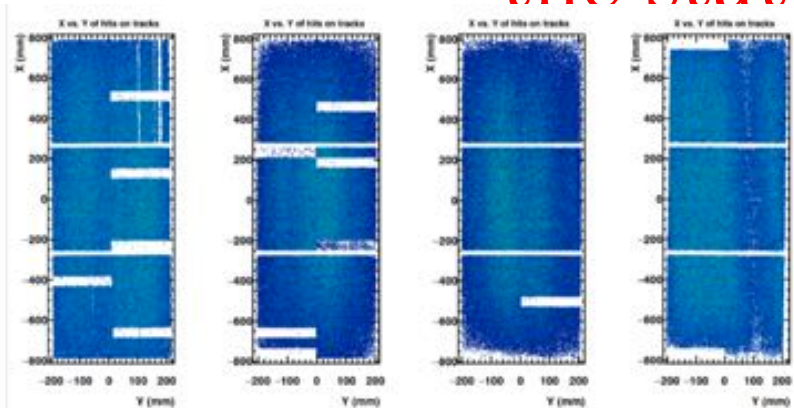
BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview the status and plans



- Distribution within each layer of reconstructed hit coordinates, showing dead areas/shorted sectors/etc.
- "Stripe" at $y = 100$ mm in layer 3 is caused by trigger bias; gap between trigger scintillators above GEMs.

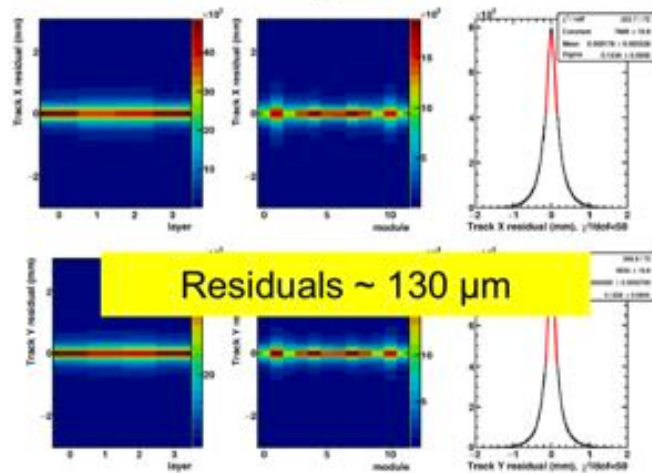
UCONN Jefferson Lab

11/13/19

SBS GMN-GEM meeting

17

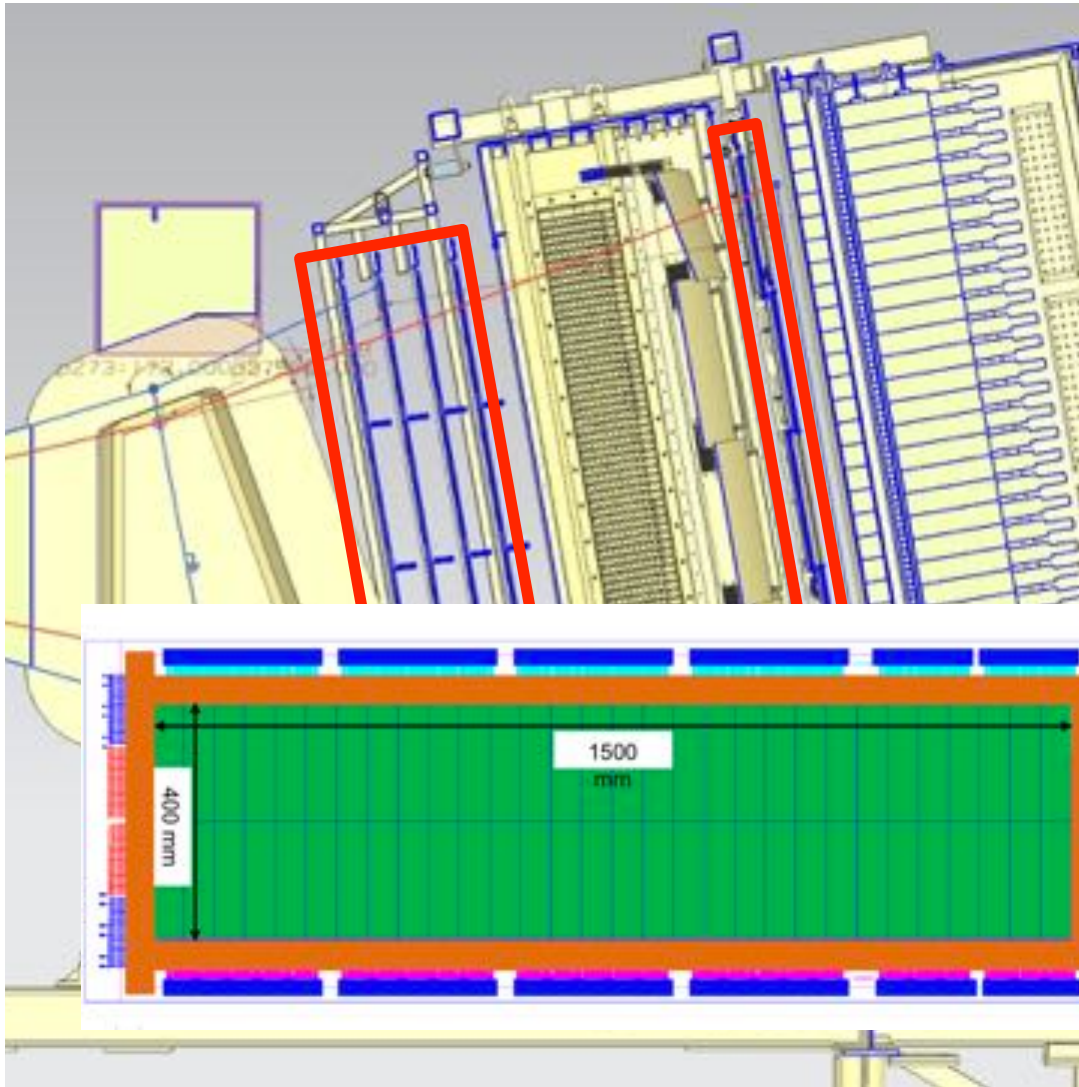
Tracking residuals



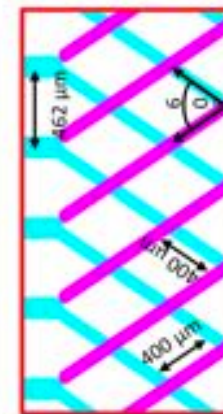
- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



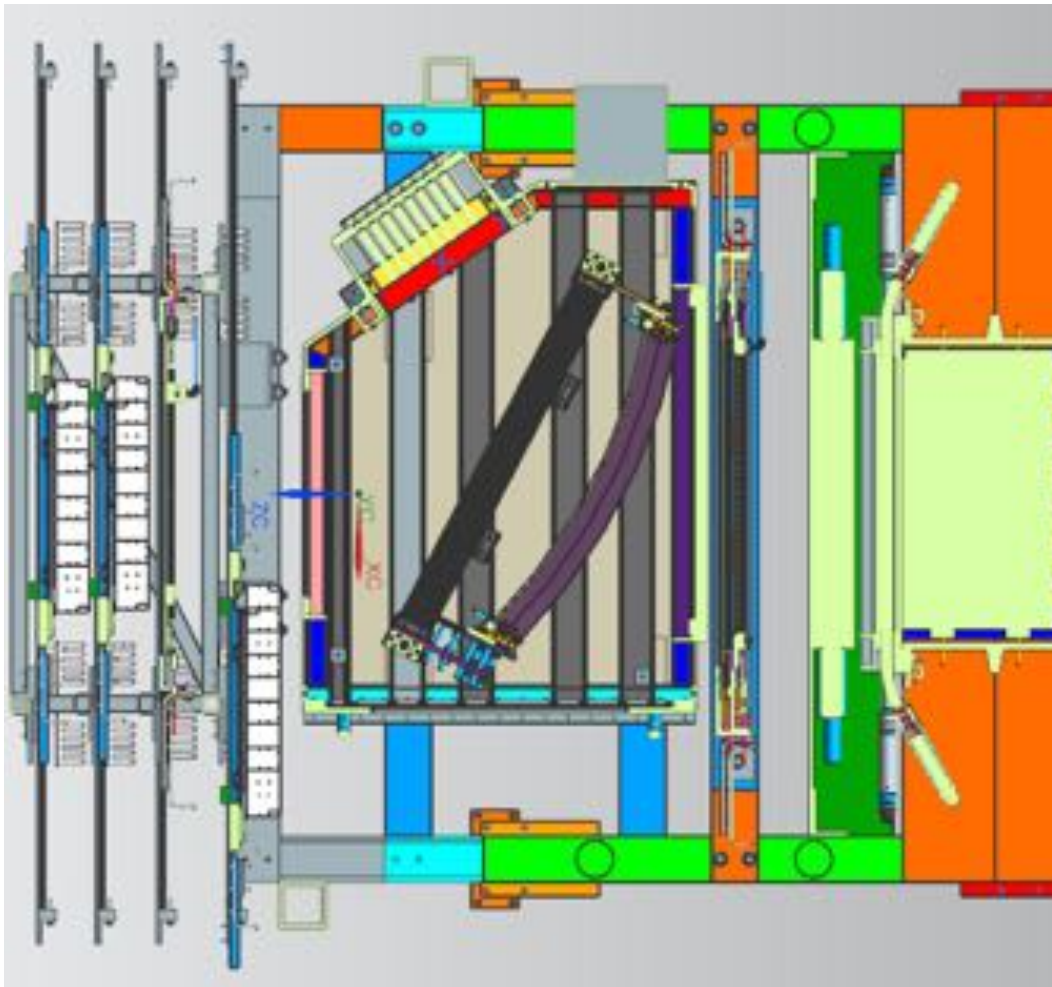
- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics



- triggers, trigger DAQ subsystems

BigBite detector overview

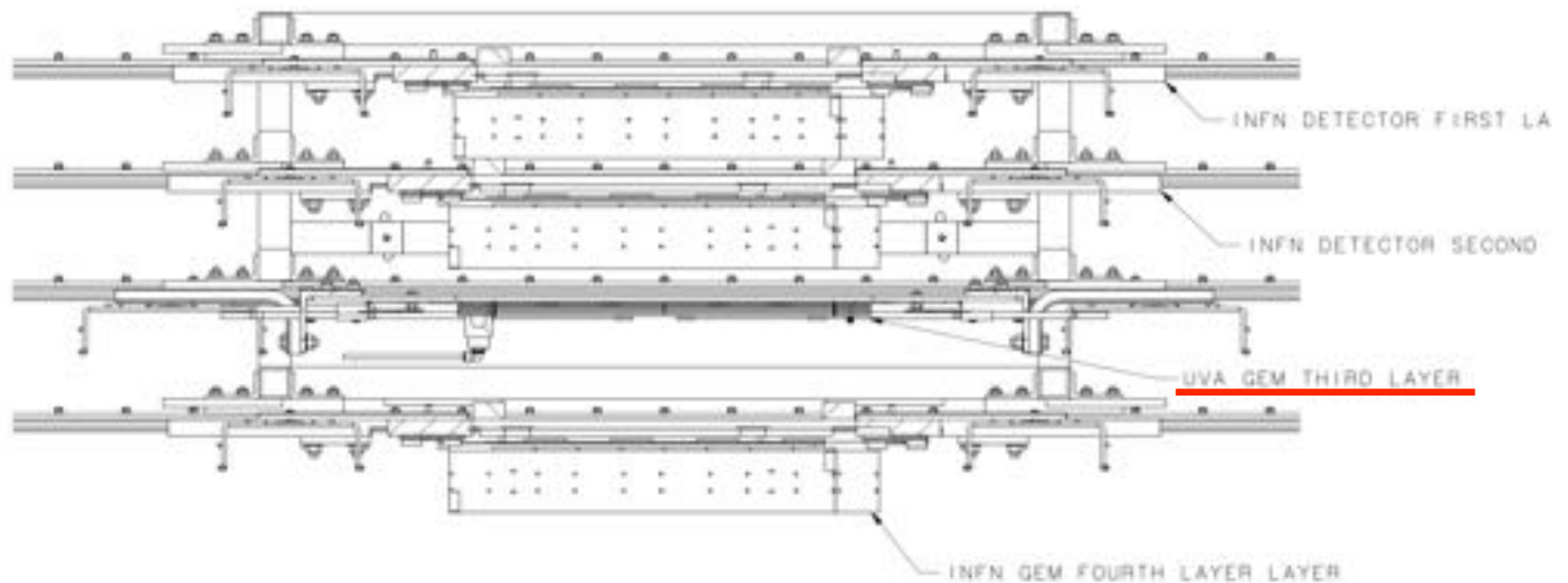
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

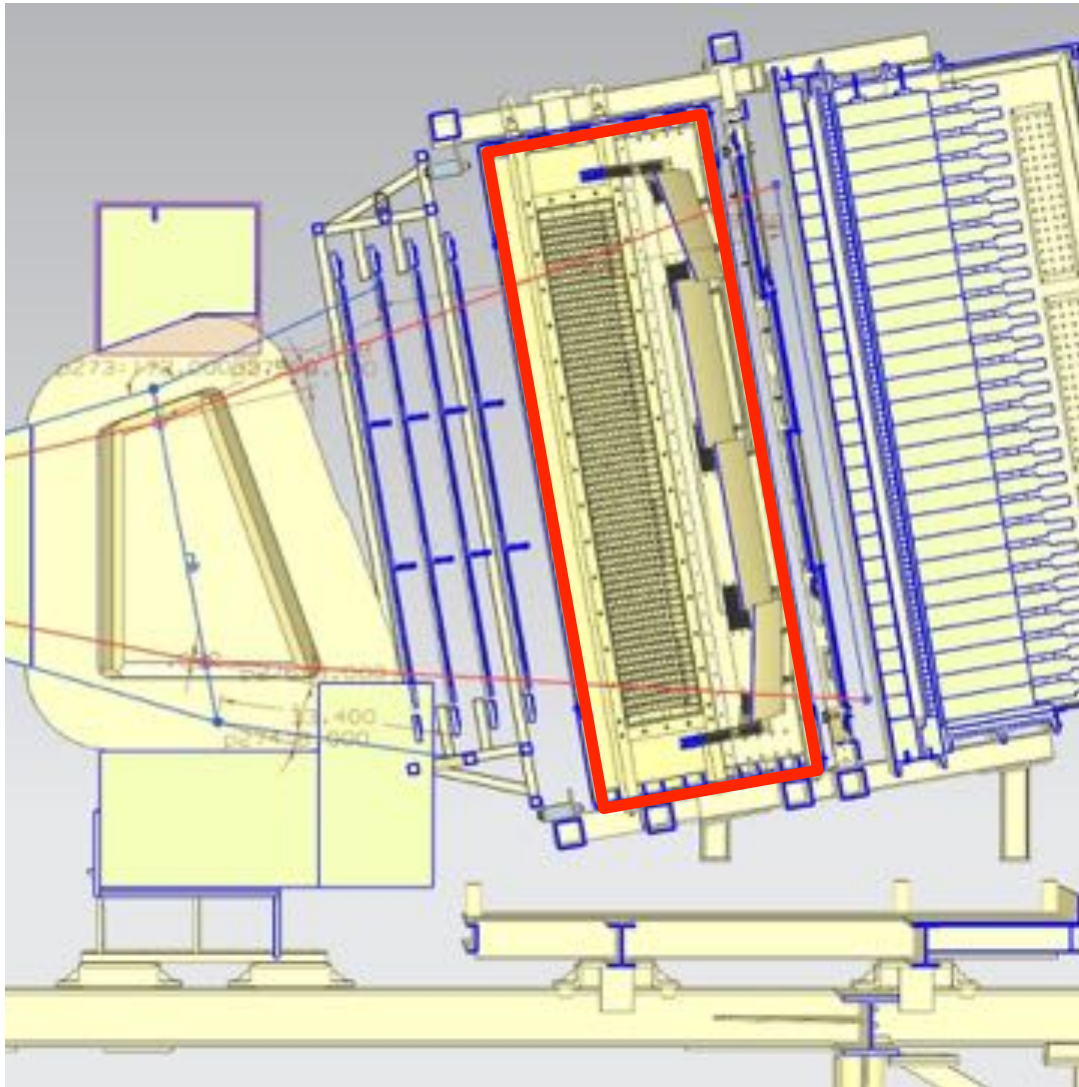
BigBite detector overview the status and plans

- GEM chambers



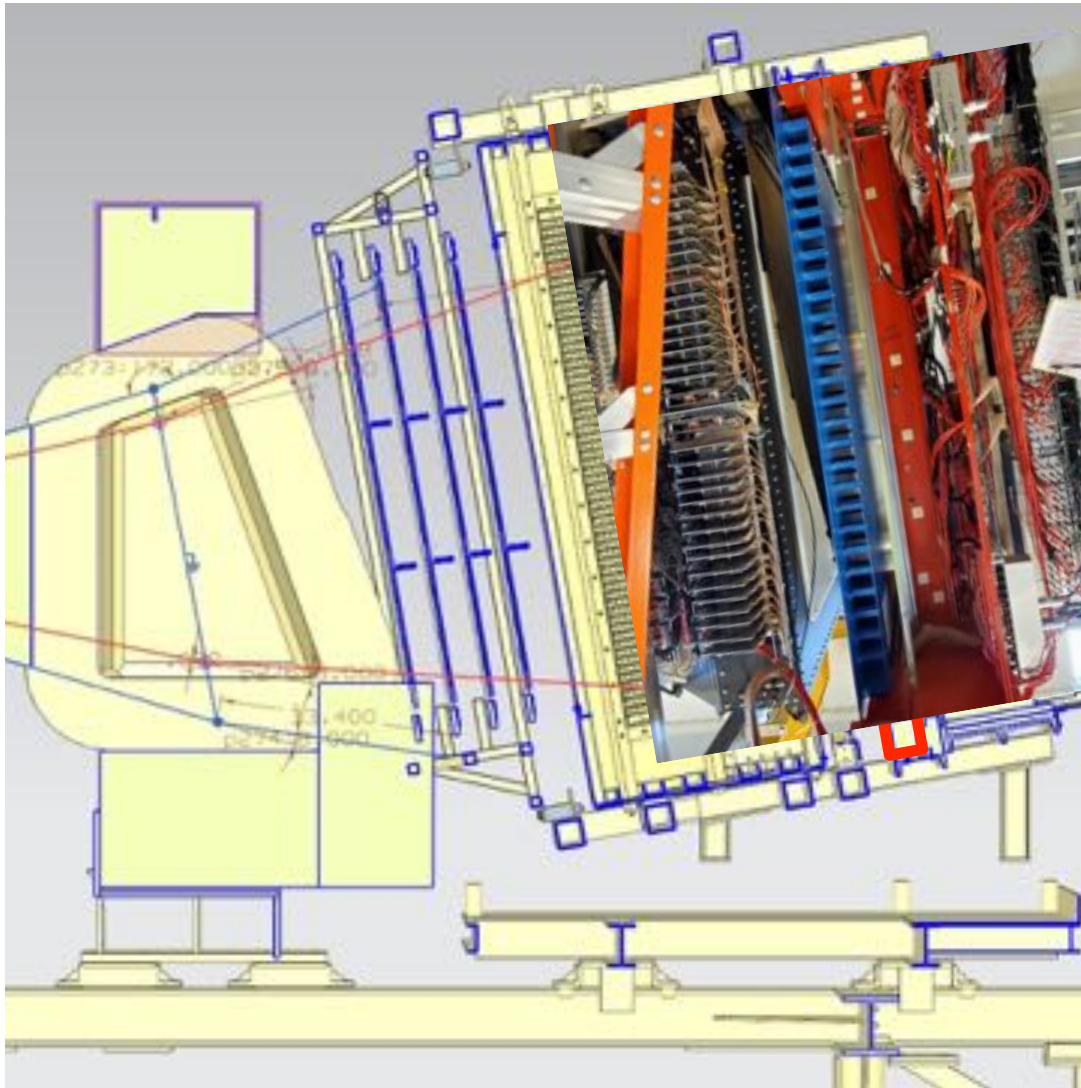
BigBite detector overview

the status and plans



- GEM chambers
- **GRINCH**
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview the status and plans



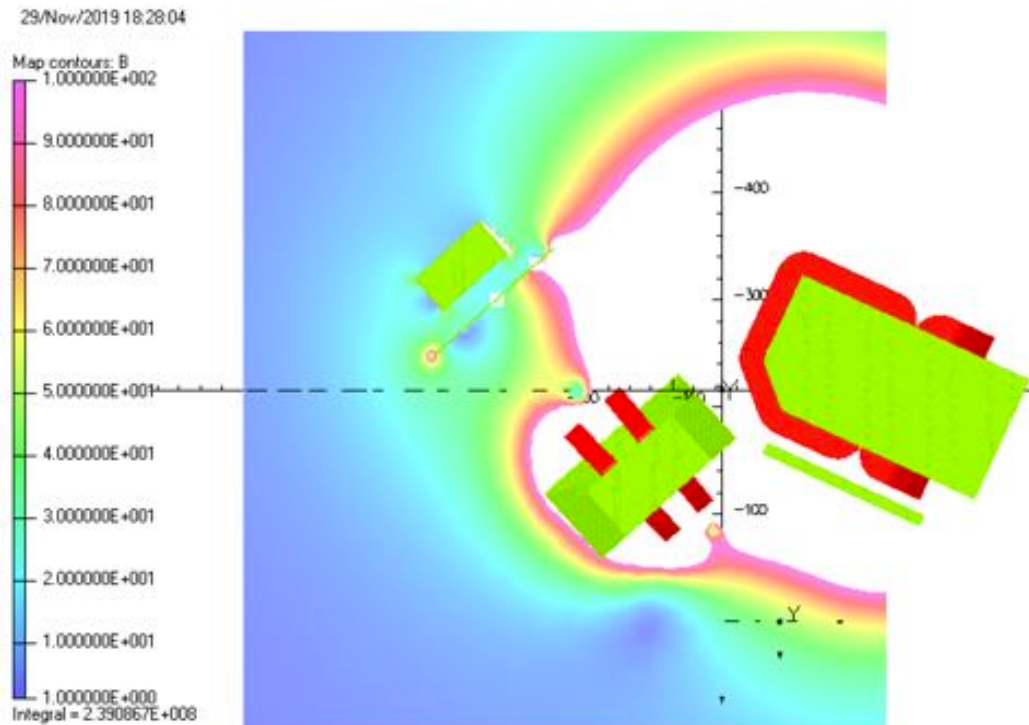
GEM chambers
GRINCH
Pre-shower



e
nics
ms

BigBite detector overview

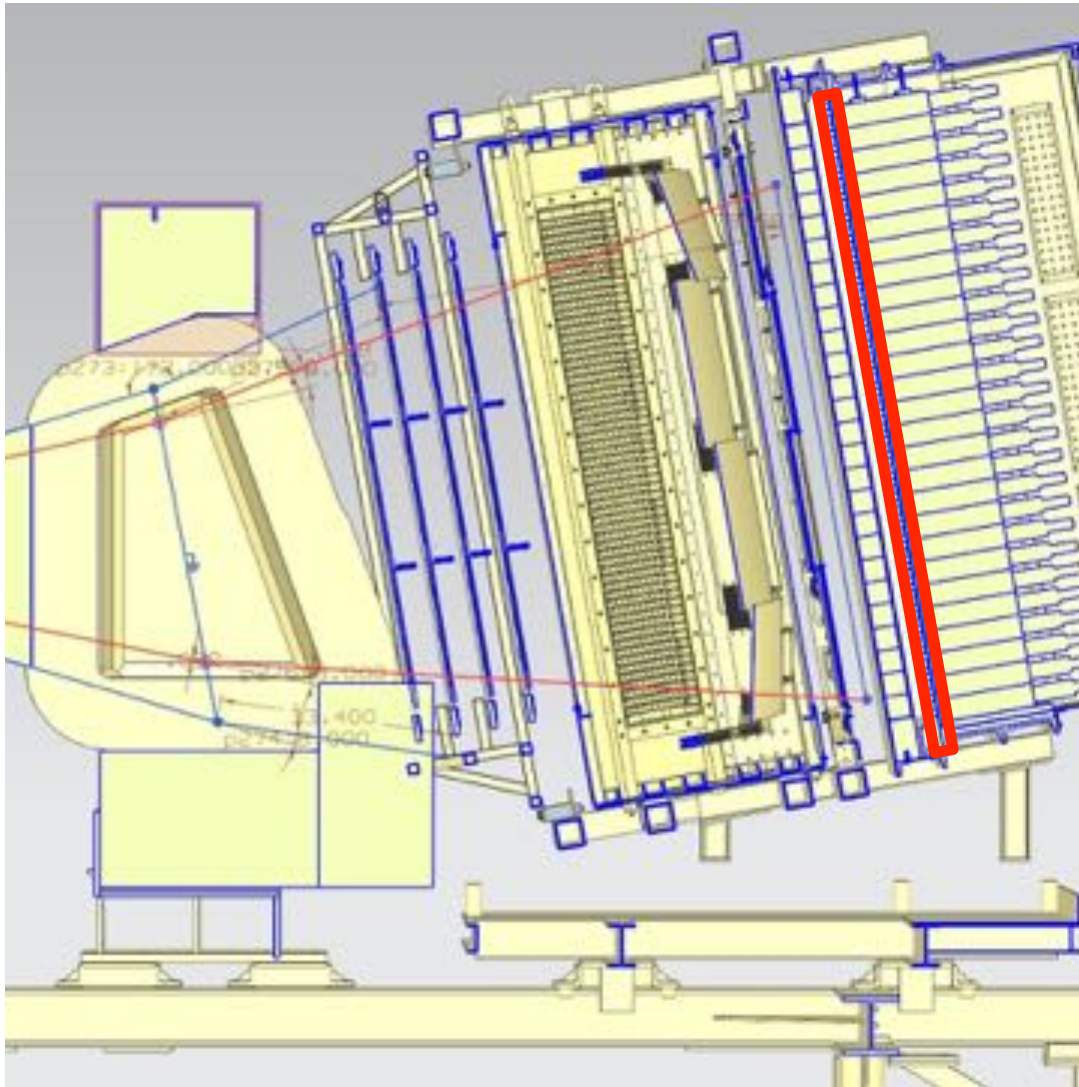
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

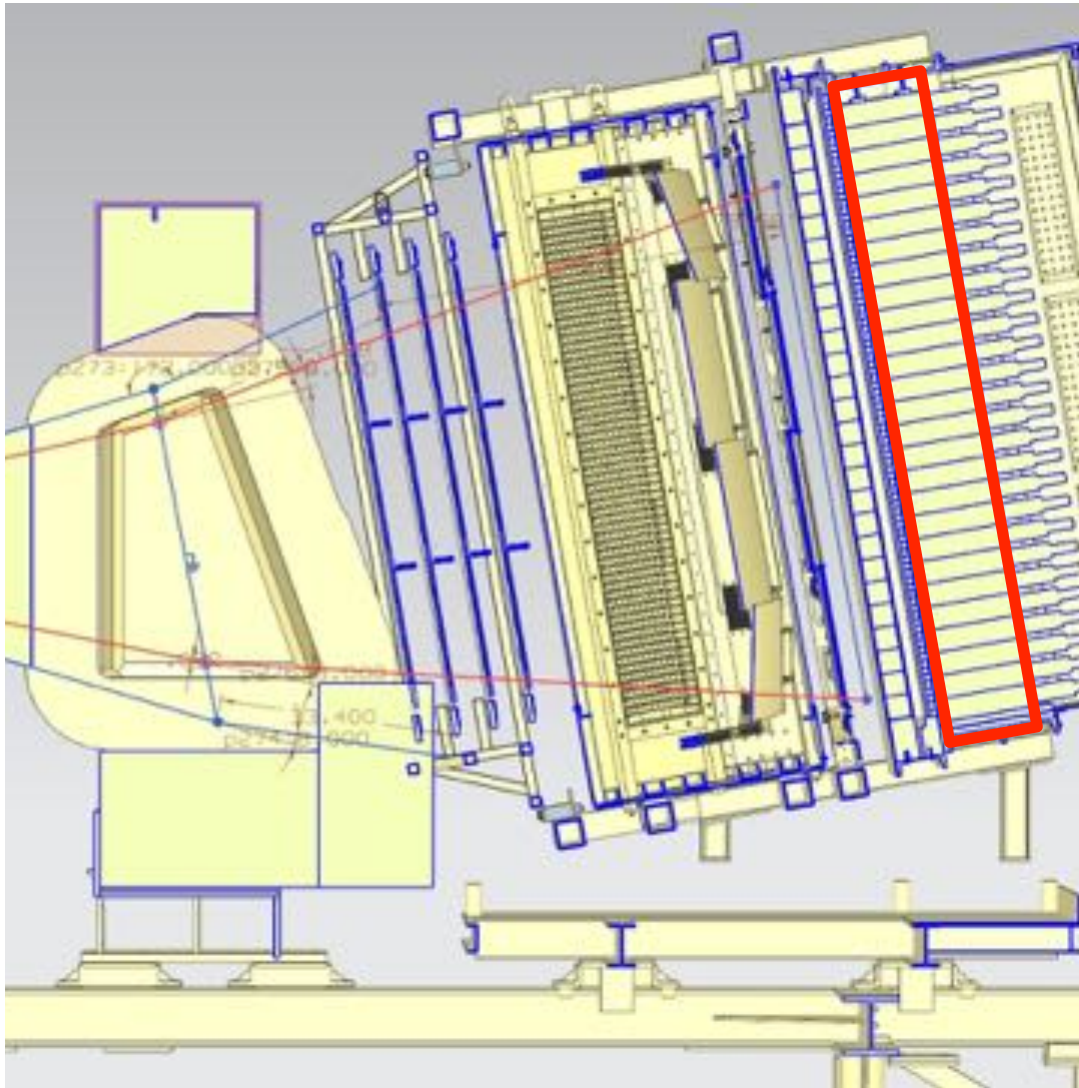
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- **Timing Hodoscope**
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

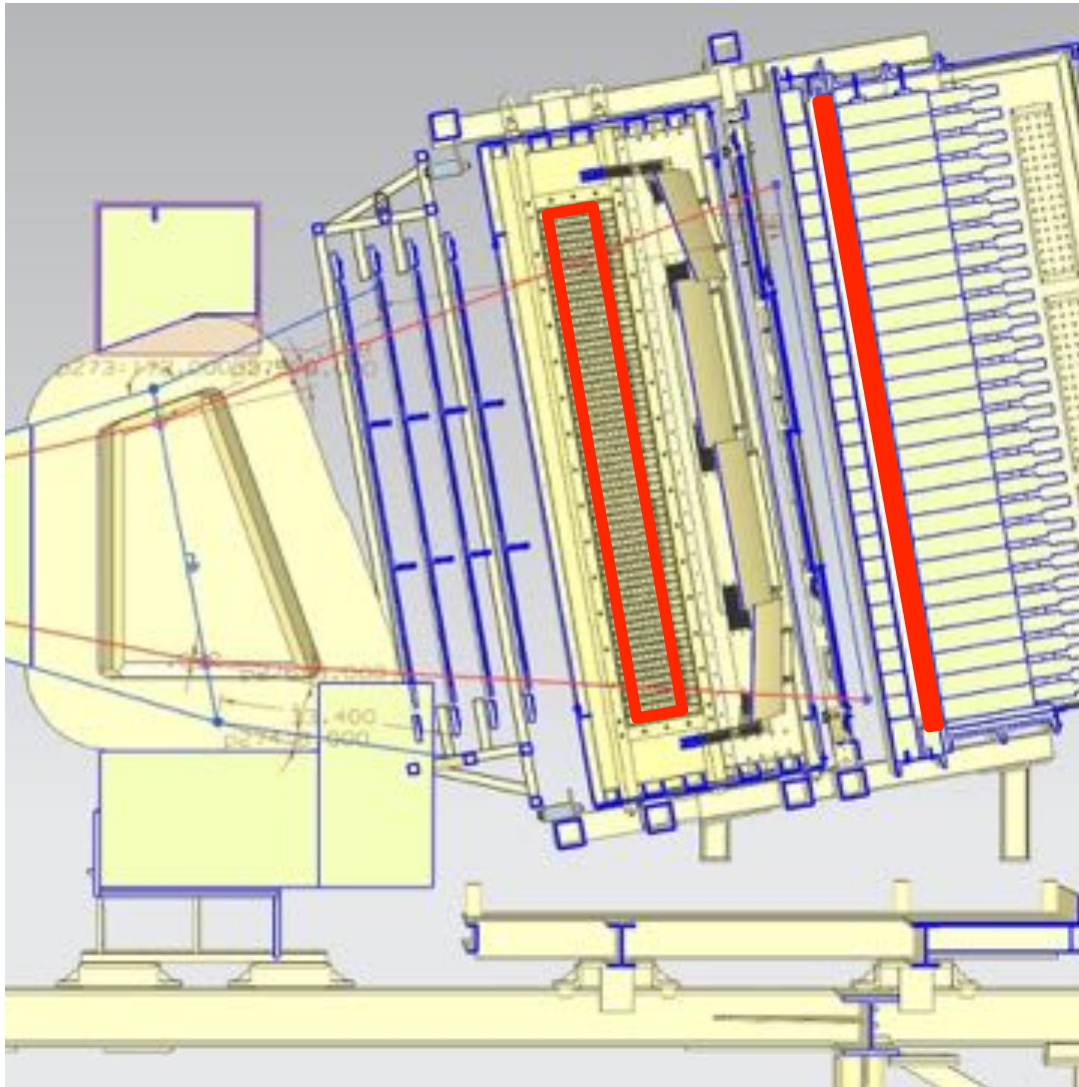
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- **Shower**
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

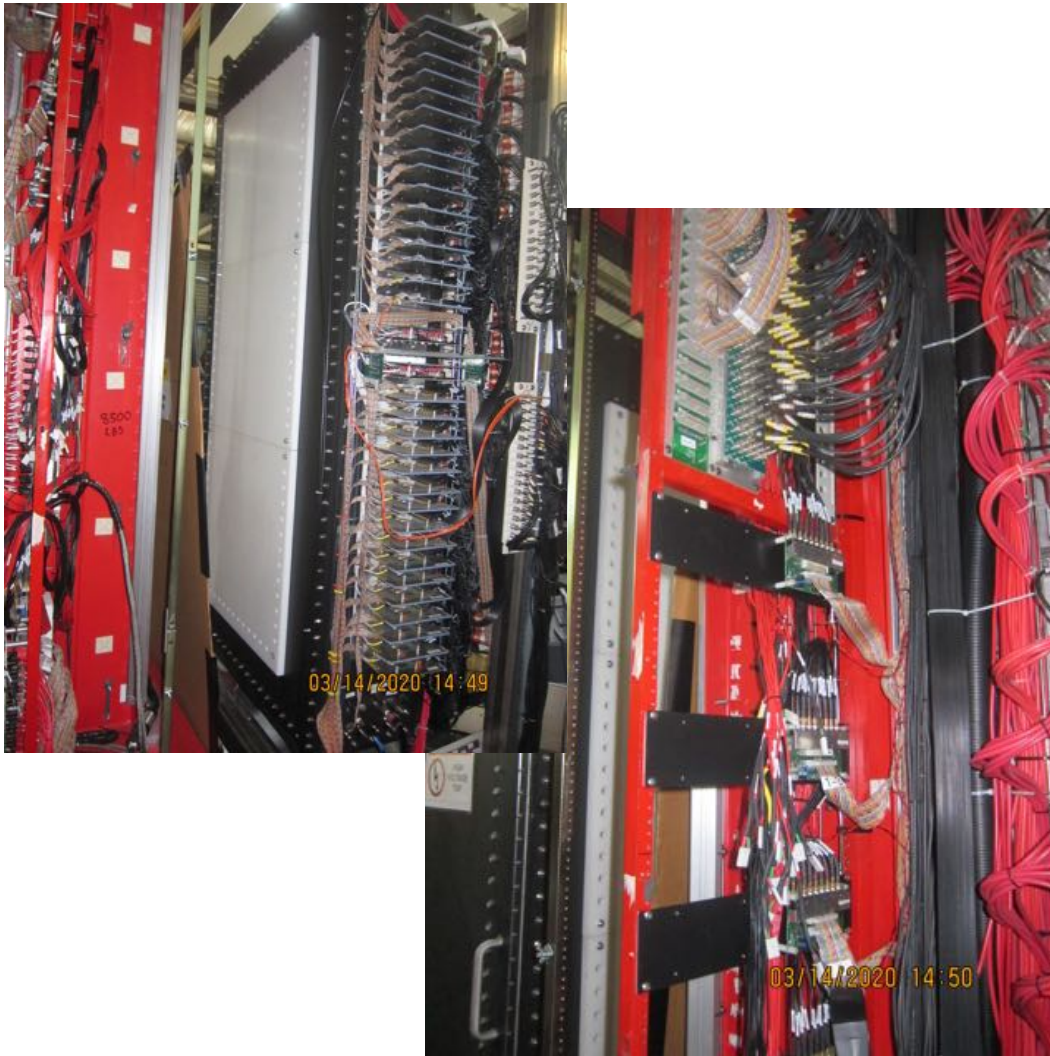
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- **Front-end electronics**
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- **Front-end electronics**
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

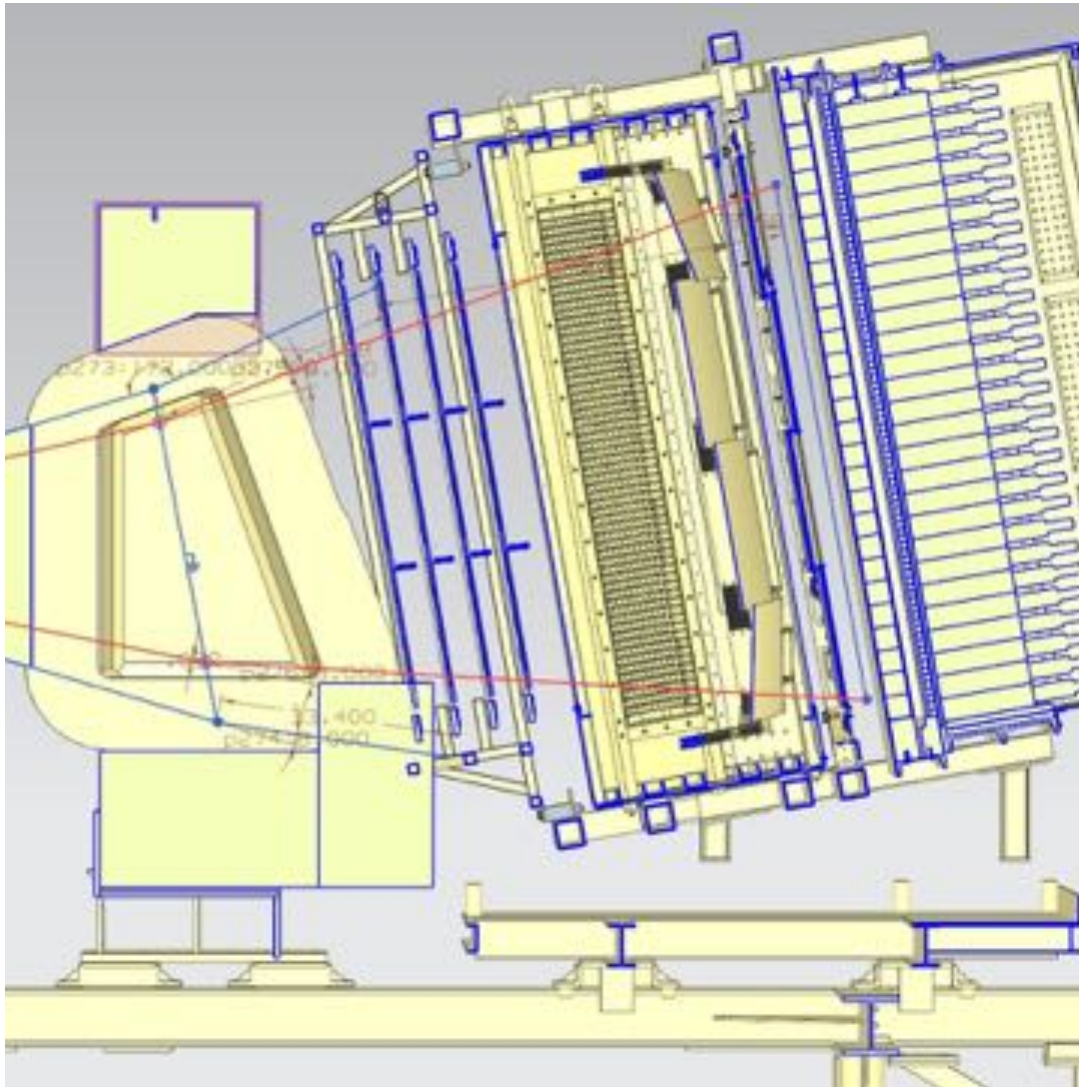
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV systems
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- **HV, 250 are short**
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

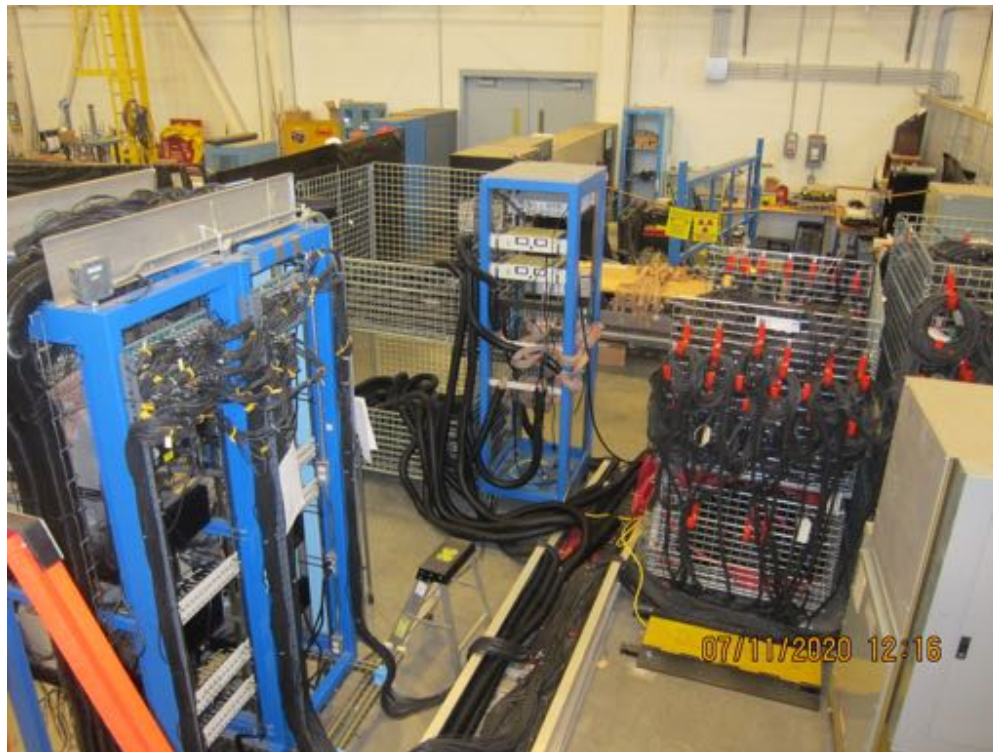
the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- **Summers, trigger**
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview

the status and plans



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- Summers, trigger
- **Cables to DAQ**
- DAQ for subsystems

BigBite detector overview

the status and plans



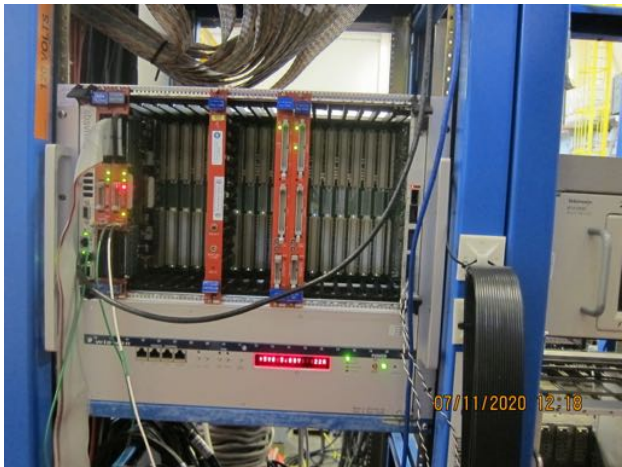
- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- Summers, trigger
- Cables to DAQ
- DAQ for subsystems

BigBite detector overview the status and plans

for GRINCH



for Timing Hodoscope



for pre-shower
and shower



- GEM chambers
- GRINCH
- Pre-shower
- Timing Hodoscope
- Shower
- Front-end electronics
- HV, 250 are short
- Summers, trigger
- Cables to DAQ
- **DAQ for subsystems**

To be completed

- BigBite hardware design
 - Support for the detector platform, the rail adjustment
 - The field clamp adjustment
 - Sieve slit with horizontal movement and proper hole pattern
- GEM electronics shielding: final mechanical and electrical layout
- HV cables for pre-shower & shower need extra 25 m
- Timing Hodoscope - rebuilding, installation, commissioning
- GRINCH, pre-shower, shower - cosmic commissioning
- GEM chambers, frame, commissioning in TEDF – big, big job
- DAQ: TH subsystem, combined CODA, online data analysis and displays, calibration plan/scripts for beam conditions